Claims

1. An acoustic synthesis and spatialization method, in which a synthetic sound to be generated is characterized by the nature of a virtual acoustic source and its position relative to a chosen origin,
characterized in that comprises a joint step consisting in determining parameters including at least one gain, for defining, at the same time:
- a loudness characterizing the nature of the source, and
- the position of the source relative to a predetermined origin.

2. The method as claimed in claim 1, in which the spatialization of the virtual source is performed in an ambisonic context, characterized in that it comprises a step for calculating gains associated with ambisonic components in a spherical harmonics base.

3. The method as claimed in claim 1, in which the synthetic sound is intended to be reproduced in a holophonic, or binaural, or transaural context, on a plurality of reproduction channels,
characterized in that, during said joint step, a delay between reproduction channels is also determined, to define at the same time:
- a triggering instant of the sound characterizing the nature of the source, and
- the position of the source relative to a predetermined origin.

4. The method as claimed in claim 3, characterized in that the nature of the virtual source is parameterized at least by a temporal loudness variation, over a chosen duration and including a

sound triggering instant.

5. The method as claimed in claim 4, characterized in that said variation comprises at least:
- an instrumental attack phase,
- a decay phase,
- a sustain phase, and
- a release phase.

6. The method as claimed in one of claims 3 to 5, characterized in that the spatialization of the virtual source is performed by a binaural synthesis based on a linear breakdown of transfer functions, these transfer functions being expressed by a linear combination of terms dependent on the frequency of the sound ($L(f)$) and weighted by terms dependent on the direction of the sound (τ_R, τ_L, C, D).

7. The method as claimed in claim 6, characterized in that the direction is defined by at least one bias angle (θ) and, preferably, by a bias angle (θ) and an elevation angle (φ).

8. The method as claimed in one of claims 6 and 7, characterized in that the position of the virtual source is parameterized at least by:
- a number of filterings, dependent on the acoustic frequency ($L_i(f)$),
- a number of weighting gains each associated with a filtering, and
- a delay for each "left" and "right" channel.

9. The method as claimed in one of the preceding claims, characterized in that the nature of the virtual source is parameterized by at least one acoustic timbre, by associating the chosen relative loudnesses with harmonics of a frequency

corresponding to a pitch of the sound.

10. The method as claimed in one of the preceding claims, characterized in that it provides for an acoustic synthesis engine specifically for generating spatialized sounds, relative to said predetermined origin.

11. The method as claimed in claim 10, in which the synthesis engine is implemented in a music editing context, characterized in that the method also provides for a man-machine interface to place the virtual source in a chosen position relative to the predetermined origin.

12. The method as claimed in claim 11, taken in combination with claim 6, in which a plurality of virtual sources to be synthesized and spatialized are provided, characterized in that each source is assigned to a respective position.

13. A module for generating synthetic sounds, comprising in particular a processor, characterized in that it also includes a working memory specifically for storing instructions for implementing the method as claimed in one of the preceding claims.

14. A computer program product, stored in a memory of a central processing unit or a terminal, in particular a mobile terminal, or on a removable medium specifically for cooperating with a drive of said central processing unit, characterized in that it comprises instructions for implementing the method as claimed in one of claims 1 to 12.